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ORIGINAL ARTICLES.

A CLINICAL REPORT OF THREE CASES OF RETINITIS CIRCINATA.*

By Howell L. Begle, M.D.,
DETROIT, MICH.

In 1893 Fuchs reported a number of cases showing a peculiar form of retinitis which he designated "retinitis circinata". Previous to this, in 1876, Hutchinson had reported the same condition under the title "Symmetrical Central Chorioido-retinal Disease Occurring in Senile Persons," and, in 1887, Goldzieher had reported three cases under the title "Die Hutchinson'sche Veränderung des Augenhintergrundes".

According to Fuchs' description, the condition occurs in elderly persons and is characterized by a unique ophthalmoscopic picture in the macular region. The macula exhibits a greyish or yellowish opacification which is surrounded at a certain distance by a girdle-like zone of small white pin-head dots often grouped together so as to form large irregular dull white patches. These areas lie in the retina beneath the retinal vessels and nerve-fiber layer. Either one eye alone or both may be affected. As a result of these changes vision is impaired, a central scotoma usually being present. Retinitis circinata is a relatively rare condition. Fuchs described eight typical cases and four cases in which either his data were incomplete or the retinal picture atypical, occurring during a period in which he had seen a total of 70,000

*From the University Eye-Clinic in Munich. Director: Prof. Dr. O. Eversbusch.

patients. A year after Fuchs' publication, De Wecker described fifteen cases occurring in 140,000 patients. Since these publications numerous observers have reported the condition. In his recent text-book, Weeks, who gives a good description of retinitis circinata, mentions that he has observed nine cases.

Our knowledge of the ætiology and pathology of retinitis circinata is meagre. Inasmuch as many cases are associated with arteriosclerosis and retinal hæmorrhages, numerous observers believe the condition is dependent upon these changes, and the white patches are explained as the result of fatty or other degenerative changes taking place in pre-existing hæmorrhages. A case of questionable character examined pathologically by Ammann tended to support this view. In numerous cases, however, arteriosclerosis or retinal hæmorrhages are not demonstrable. Fuchs attributes the white areas to coagulation or fatty degeneration of fibrinous transudates. From either standpoint disease of the smaller macular vessels could be presupposed. Retinitis circinata is not associated with albuminuria, and syphilis does not appear to have been a factor in the cases reported.

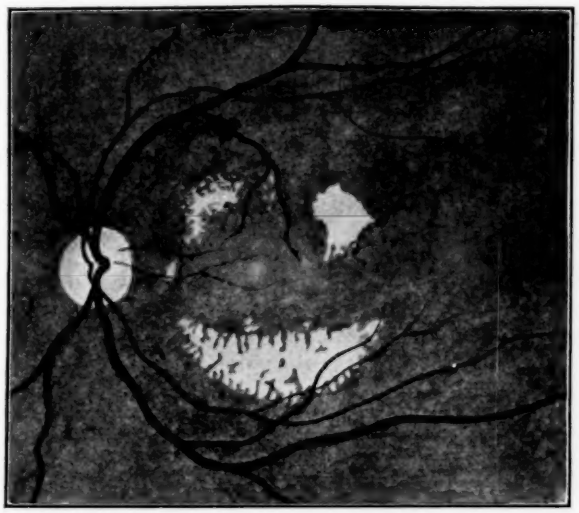
Retinitis circinata owes its rank as a distinct clinical entity to its unique ophthalmoscopic picture, and well developed cases are easily diagnosed with the ophthalmoscope. In early cases, on the other hand, where only a few white dots appear along the temporal retinal vessels with or without macular changes, retinitis circinata is only suggested. Longstanding cases may be rendered atypical by pigmentation, thickening of the retina in the area involved, or, as has been reported by several observers, the white patches may partially or completely disappear, vision however remaining impaired.

Through the courtesy of Prof. Eversbusch I present the following clinical pictures of patients whom I have had the opportunity of observing while in his service at the University of the Munich Eye Clinic: 1, a typical case of retinitis circinata; 2, a case of retinitis circinata with unusually heavy pigment deposits in the macula; 3, a case suggestive of beginning retinitis circinata.

1. Fräulein S., a cook, age 56 years, came to the eye-clinic on March 3, 1912, complaining of failing vision in the left eye. Some three years before she had noticed that the candle flame in the early morning seemed to be set in a grey mist with a yellowish border. For the past six or eight months vision in the left eye had been greatly interfered with by a dark spot con-

stantly intervening between her eye and any object in the line of vision. When in the dark, moreover, she was often conscious of several concentric bright yellow rings before her left eye. On examination the vision of the right eye was found to be 6/6, that of the left eye 6/60; with+2.00 for near, the right eye read Jaeger No. 2 at a distance of 35-40 centimeters, the left eye Jaeger No. 16 at 40 centimeters. Externally there was nothing of pathological significance.

With the ophthalmoscope delicate opacities were seen inferiorly in the periphery of each lens when the patient looked downward. Otherwise the media were clear. Scattered here and there over the fundus of the right eye were numerous



CASE 1.

small pale yellow dots about the diameter of a large retinal vein, the margins of which were indistinct. Outside of the presence of these, which I attributed to excrescences of the lamina vitrea of the chorioid, the fundus of the right eye was normal.

The fundus of the left eye also presented a few of the yellowish dots in the periphery, fewer in number than in the right eye. Papilla and retinal vessels were normal. Temporalwards from the papilla were three large dull whitish patches forming together an incomplete ring about the macula, open nasally and temporally. The lowest patch was by far the largest and lay just above the inferior temporal artery and vein, being crossed

by some of their branches. It presented along its superior border the characteristics described by Fuchs as similar to the arbor vitae of the cerebellum. Many small white dots adjoined the margins of the other two patches which lay to the right and left beneath the superior temporal vessels. The larger patches appeared as if formed by the confluence of smaller patches and dots. The macula was less homogeneous and more yellowish in color than the rest of the fundus. (Fig. 1.)

The field of vision of the right eye was within normal limits; that of the left eye was somewhat contracted and there was a central scotoma of 20° in diameter. The light sense taken with the Förster photometer was normal for the right eye. For the left eye the value given was one-third of that of the right eye.

No cause for this retinal condition could be ascertained. The patient was a woman of medium build, who stated that her health was good. She had had few illnesses. The right ear had discharged intermittently since childhood. Examination of the chest was negative, the urine was free from sugar, albumen and casts and the blood pressure was 140-150.

I examined this patient again May 15, 1912. The condition had changed slightly in that the two upper patches were somewhat larger and a number of white dots had appeared more centrally in the yellowish part of the macula.

2. Frau E., age 72, has been under observation and treatment for failing vision in the private wards of the eye-clinic at various times since July 1, 1909. The first record of her vision is: "Right eye=5/20, with+2.00=5/7.5. For near with+5.00 reads No. 2 Jaeger at 20 centimeters. Left eye=counts fingers at ½ meter. Unable to read Jaeger No. 18."

One gathered from her history records that the pathological changes in her eyes consisted of peripheral opacities in both lenses, and a macular condition of the left eye diagnosed first as chorio-retinitis macularis, later as retinitis circinata. Moreover signs seem to have been present leading to a suspicion of glaucoma.

I had an opportunity to examine this patient in March, 1912. Vision was then:

Right eye=4/60, with +2.00=6.30. For near, with+6.00 reads Jaeger No. 4 at 20 cm. Left eye=counted fingers at 10 cm., unable to read Jaeger No. 18. She was a tall angularly built woman, well preserved for her years with no complaint but that of defective vision. In a general examination nothing of

pathological significance was revealed; chest was negative, urine free from sugar, albumen and casts. Previous measurements had shown a blood-pressure varying from 160-190.

In both eyes the conjunctiva was slightly hyperæmic, the cornea clear, and the anterior chamber somewhat shallow. The pupils were round, the reaction in the left eye prompt, that in the right eye somewhat sluggish. In the periphery of each lens were sektor-like opacities. Otherwise the media were clear. The papilla of the left eye was of normal color, the margins not sharply defined, and a broad excavation was present which however did not extend to the disc margins. No pathological

CASE 2.

changes were observed in the retinal vessels. In the macular region were two large black pigment masses and several smaller ones. These were surrounded by a zone of dull whitish patches varying in size and shape, with irregular borders. They were situated in the retina beneath the retinal vessels. Nasalwards and downwards from the papilla was a small patch of pigment adjacent to the inferior nasal vessels. On account of a narrow pupil a satisfactory examination of the right fundus was not obtained. There was an excavation of the papilla and in the macula were white patches, apparently without pigmented areas. The tension of the right eye with the Schiötz tonometer was 33 mm., that of the left eye 30 mm. The fields of vision showed

some shrinking for white and colors. That of the left eye had a central scotoma 20° in diameter. After ten minutes adaption with the Förster photometer, the light sense in the right eye was 2 mm., that of the left 7 mm. The drawing of the left fundus was made in June, 1911. (Fig. 2.)

The circular arrangement of white spots in the left eye, the central scotoma and the absence of definite ætiological factors in this case warrant I believe a diagnosis of retinitis circinata. To explain the heavy deposits of pigment one may suppose that the case was long-standing or of such a severe type that the pigment epithelium or chorioid had been secondarily involved leading to hypertrophy of the former. I shall refer later to the increased tension in this case.

3. Kaspar S., a laborer, age 61, came to the eye-clinic in January, 1912, complaining of poor vision with the right eye, when looking at objects directly, a condition that he had noticed some three or four months.

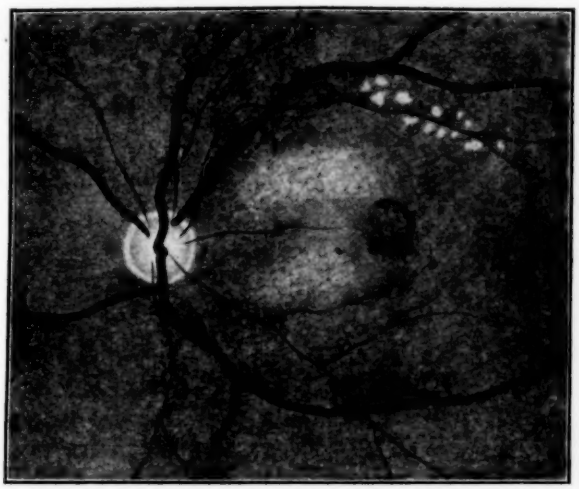
Vision: Right eye=fingers counted at 3 meters, no improvement with lenses; for near, with +3.50 read Jaeger No. 16 at 25 cm. Left eye=6/15, with+0.75=6/8; for near, with +3.50 read Jaeger No. 2, 20-35 cm.

Externally the eyes presented nothing pathological. Both lenses had peripheral opacities. With the ophthalmoscope the fundus of the left eye was normal. In both eyes the retinal vessels appear free from signs of sclerosis. In the macular region of the right eye about the fovea centralis there was a delicate greyish pigmentation with ill-defined borders. With the ophthalmoscope, used with maximum illumination, this pigment was not seen, the same area appearing yellowish and lighter in color than the surrounding retina. Along the inferior temporal vessels were some ten or twelve small white pinhead spots. Certain areas of the retina, one below the superior temporal vessels and another between the macula and the disc, appeared less homogeneous and more yellowish than normal. (Fig. 3.)

There was no shrinking of the visual fields. The right had a relative scotoma 10 degrees in diameter. The light sense was slightly lowered in the right eye. The patient stated that he had had no serious illnesses. There was no history of syphilis and the Wassermann reaction was negative. The heart was of normal size, the second sound slightly accentuated. The blood-pressure was 150. The radial artery could be felt. With heat and nitric acid test and with Hellers' test I could detect no albu-

men in the urine, but in the sediment were numerous hyaline casts. There were no traces of sugar.

On the basis of the central scotoma, the opacification of the macula, and the white spots along the inferior temporal vessels, the diagnosis of incipient retinitis circinata was tentatively made in this case. It was thought that other white spots might develop in the yellowish areas described adjacent to the superior temporal vessels and temporal wards from the papilla. I have examined the patient twice since the first examination, the last time May 15, 1912. However, not only had no other white spots developed but those that were present and the yellowish areas were disappearing. This observation while failing to



CASE 3.

strengthen the diagnosis is of interest in connection with the fact that in many cases the white spots in retinitis circinata tend to disappear.

As regards the ætiology of retinitis circinata it is of interest to note that all three of these patients were past middle age. While definite signs of sclerosis of the retinal vessels were not observed, that circulatory disturbances were present is suggested by the presence of incipient cataracts in all the cases, a relatively high bloodpressure and increased tension in the second patient, and such signs of general arteriosclerosis in the third patient as accentuation of the second sound of the heart, stiffness of the radial artery and hyaline casts in the urine. So far

as I know, in only one case previously reported was retinitis circinata associated with glaucoma and that was the case described by Ammann. I can suggest no relation between an increase of tension and the retinitis circinata in the second patient other than would arise from a common origin in a diseased vascular system.

The presence of yellowish areas in and about the macula, as described, instead of retinal hæmorrhages, leads me to believe that the white patches in these cases arose from fatty or other degenerative changes occurring in retinal exudates, the latter in turn arising from disease of the smaller macular vessels.

A RUBBER-SHOD EYE CUP.

By John Green, Jr., M.D.,
St. Louis, Mo.

In using an ordinary glass eye cup considerable pressure is necessary to bring the unyielding rim in sufficiently close contact with the tissues surrounding the globe to prevent leakage of solution. When thus firmly applied, pressure of the hard rim causes a certain amount of discomfort or even pain. This disadvantage is of no great moment when the solution is brought

in contact with the eye momentarily, as in the case when a bland solution is used for cleansing purposes.

Recently Dor has advocated as a non-surgical treatment of incipient cataract prolonged bathing of the eye in a solution composed of potassium iodide, grams 5, crystallized chloride of calcium, grams 5, distilled water 100 cc. This solution, placed in an eye cup, is brought in contact with the eye which is kept im-

mersed for fifteen or thirty minutes. For this procedure a rubber shod eye cup is indispensable. At my request the Aloe Company has constructed the device herewith described.

A cylinder of the best rubber shaped to fit tightly the sides of an ordinary eye cup is surmounted by a roll of rubber which is shaped to conform to the contour of the rim and slightly overlaps it. The rubber roll is sufficiently resilient to shape itself to the inequalities of the orbital rim so that a moderate pressure will close in all gaps and prevent leakage. The soft yielding character of the rubber permits a considerable pressure to be made without causing discomfort.

This device should also be useful in the prolonged bathing of the eye with boric acid solution advocated by some surgeons as a preliminary to cataract extraction. A larger eye cup similarly shod should be useful in the argyrol immersion treatment of gonococcus ophthalmia.

STUDIES OF THE PIGMENT IN THE LIVING EYE.

C. Augstein (*Klinische Monatsblätter für Augenheilkunde,* January, 1912), from his studies of this subject, comes to the following conclusions: 1. The pigment in the anterior part of the eyeball, usually supposed to be congenital, is not so, but makes its appearance in the first year of life and gradually develops. The same holds true concerning the pigment rings about the scleral veins. 2. Trauma may be considered as the cause of many pigmentations in the anterior part of the eyeball, particularly of the episcleral tissue. 3. The formation of pigment depends upon the presence of extravasated blood and pigmented epithelial cells. 4. Following inflammations of the uveal tract there can be an increase of pre-existing pigment as well as new formation. 5. A migration of coloring matter from the internal pigmented areas to the surface is by no means unusual. 6. After the prolonged use of miotics there frequently occurs a precipitation of pigment on Descemet's membrane. Migration of pigment through the cornea may also take place. 7. The melanosis of the cornea has nothing to do with the membrana pupillaris perseverans. 8. In subconjunctival hemorrhage it is an established fact that the earliest absorption of the blood occurs in the immediate neighborhood of the vessels.

TRANSLATIONS.

THE IODIDE COLLYRIA IN THE TREATMENT OF CATARACT.*

By M. Chevallereau.

Translated by Adolf Alt, M.D.

In 1897 I presented to the Ophthalmological Society of Paris the observation on a venerable Parisian colleague, Dr. Desparquets, 80 years of age, in whom an absolutely complete cataract in the left eye which I was getting ready to extract had gradually diminished and finally disappeared without any treatment. This was not a case of progressive absorption of a cataract, but a gradual clearing up of the crystalline lens which perfectly regained is transparency without any change in form. This fact together with several others which have been published proves that the opacities of the lens are not necessarily destined to remain stationary or to increase. In very rare and not previously recognizable cases, a cataract may get cured, and this suffices to legitimize the trials with medicinal treatment which have been made at all times, usually, however, without success. The treatment with iodide collyria seems to make an exception of this general rule.

This method of treatment is now well known and it would be out of place to give its history in detail. My only object is to give my personal experience concerning this much mooted question.

For about 25 years I have used the iodide treatment in beginning cataracts when the opacities purely peripheric with a clear central lens allow still of an excellent visual acuity. I use it even when the dark radii coming from the periphery of the lens begin to show themselves in the pupillary area and disturb vision more or less considerably. Finally, I use it in cases in which the opacity beginning at the centre disturbs vision very considerably, especially when these patients are exposed to bright light which causes their pupils to contract.

I do not employ the medicinal treatment except when the

*Clinique Ophtalmologique, June, 1912.

vision is at least 0.2, sufficient to work in most occupations, and when patients can still with proper glasses read the ordinary print of books or journals. Beyond these limits it is useless, and it is preferable to prepare them for a future successful operation by watching their conjunctivæ and lacrimal passages.

I take the visual acuity of the patients with care, by placing them always under the same conditions at the first and subsequent examinations, by seating them always at exactly the same distance from the test letters, and by using as much as possible the same amount of illumination.

I am not satisfied alone with examining their visual acuity. I draw as well as I can the aspect the lens presents on a record, and this seems to me to be the only means by which we can find out whether a cataract increases, or, on the contrary, the opacities diminish and disappear in places.

I employ the iodide in two forms, as collyrium and as a bath. The collyrium seems to be better in all cases in which somebody is at hand who can easily instill the drops between the lids; when the patients live by themselves I replace the collyrium by eye baths, ordering the patient to allow the eye to remain in the liquid for five minutes morning and night and to open the eyes wide so that the liquid comes in contact with the whole surface of the eyeball. In spite of the most prolonged contact between the liquid and the eye, the results from eye baths have not seemed to me to be preferable to those from the collyrium.

The formula of the collyrium is: Sodium iodide 0.5, distilled water 10 grammes. Instill 2 drops morning and night.

From this dose the patients feel no more than from a few drops of distilled water. The iodide may be increased to 60, 70 or 80 centigrammes to 10 grammes of water; but this latter dose usually causes the patients a disagreeable sensation, yet it produces no lasting irritation.

For the eye baths I prescribe 3 to 4 grammes of sodium iodide to 500 grammes of distilled water, to be used warm for five minutes morning and evening.

This dose is very well borne. Stronger doses cause a disagreeable sensation.

Potassium iodide may be used the same as sodium iodide. The only inconvenience is that the iodide of potassium is less well borne by the patients and that the dose must be made smaller. I have always noticed this lesser tolerance for the local applications of potassium iodide. On the other hand, potassium

iodide has a decided advantage over sodium iodide in that it is much more stable and does not become so easily decomposed.

In two cases, in fact, those of two old ladies, after a prolonged use of the sodium iodide collyrium, I have seen the whole conjunctival sac discolored as it happens after nitrate of silver collyria have been used for a long period.

The first case, a lady, 69 years of age, has come to see me from time to time since. February, 1906, she had only quite peripheral lenticular opacities in the lower inner part, but her visual acuity was reduced to 0.6. I gave her the sodium iodide collyrium. On June 13th V=barely 0.7, R. E.; barely 0.9 L. E. October 12th, 0.7 easily R. E.; 1 L. E. On March 11th, 1907, V=1 in both eyes.

Since then she has retained a normal visual acuity, but has continued to use the collyrium. The opacities in the lower inner quadrant of the right lens, have become much less dense, but still exist; those in the left lens are completely gone.

On November 4th, 1909, when I had not seen the lady since the previous January 29th, I found the palpebral and ocular conjunctiva of a very pronounced brown color. The first thought that came to me was that she had used nitrate of silver, but she said she had never used any other but my collyrium. Fearing that this might be a phænomenon due to her general state I asked Dr. Barié, physician to the Hospital Laënnec, who had sent her to me, to examine her carefully and to give me his advice. Dr. Barié reported to me that her general health was excellent and that there was especially no sign of Addison's disease, which might have explained the discoloration of the conjunctivæ.

In these two years and a half this discoloration has not changed. Her vision remains normal. The only change visible in her eyes are a few floating opacities in the vitreous bodies.

Mrs. V., 63 years old, came to consult me on August 24, 1906, on account of a peripheral cataract in the left eye, the right eye being still normal. Since then this lady has used, though somewhat irregularly, the treatment with iodide eye baths and the sodium iodide collyrium.

During these six years her vision has remained the same. R.E. V=1 with+1D.; L.E. V=0.4 with—2D. The only change which can be seen is the appearance of floating opacities in the vitreous body of the left eye.

When Mrs. V. came on May 17th last to consult me I had not seen her since the preceding June 3d. I now saw in the conjunc-

tiva of the left, the cataractous, eye a black color exactly like an argyrosis and very similar to that I had observed in the previous case. The health of Mrs. V., also, is perfect and no other cause for the conjunctival discoloration can be found, and in her case we are the more justified in accusing the collyrium of this black color since it has appeared only in the cataractous left eye, the eye in which the sodium iodide collyrium was used. The other eye shows nothing abnormal.

These are the only two cases in which I have seen this black discoloration of the conjunctiva, but in these it appeared only after the iodide of sodium collyrium had been pretty regularly employed for several years.

I have not seen it following the use of the iodide of potassium collyrium. In the first place, before having made these experiences, I employed almost solely the iodide of sodium collyrium because being better borne than that of iodide of potassium, and I have, therefore, much less experience with the latter; and secondly, the iodide of potassium is a more stable salt than the sodium iodide, which is more easily decomposed under the influence of carbonic acid and oxygen and gives off free iodide which is probably the cause of the discoloration of the tissues.

I can only in a general way report the results which the use of iodide collyria has given me in the treatment of cataract. The cataract is such a common affection that it would be tedious, even impossible to relate in detail all the cases which have come under my eyes in about 25 years, since I have been making use of this treatment. I hasten to say that my results are much less brillient than those which have been reported. A complete cure is rare; I have seen only 3 such cases. Improvements of some tenths in visual acuity are more numerous.

Mrs. M., 57 years of age, came for the first time to consult me in 1891. She had a peripheral cataract in the right eye. I prescribed the sodium iodide collyrium which she used regularly. The lenticular opacities diminished gradually and were completely gone in 1897. This cure has remained perfect since then. She is now 78 years old and when I saw her recently there was no opacity in the lens.

I am far from Louis Dor's enthusiasm, who when advising a solution of dry iodide of sodium and crystallized calcium chloride, 5 grammes of each to 400 grammes of water, said: "With this solution we can stop the progress of 8 cataracts in 10,

cure 1 and meet with failure in the tenth case only." Of course, Dor speaks only of cataracts in which V. is still 1/2.

From my experience with this treatment I can safely draw the following conclusions:

In very rare and hardly determinable cases the cataract may improve and even disappear without operation. The iodide collyria are the best in order to obtain such results. Sodium iodide is better borne than potassium iodide, but sometimes it may on account of its decomposition produce a discoloration of the conjunctiva similar to argyrosis. Two drops of the collyrium instilled morning and evening give as good results as prolonged eye baths. With a collyrium containing 50, 60 or 70 centigrammes of sodium iodide or potasium iodide to 10 grammes of water, employed for years, one may in some rare case obtain the complete cure of a beginning cataract, often a partial disappearance of the opacities with improvement in visual acuity, and, perhaps, more often keep the cataract in *statu quo* than when the patient is not subjected to any treatment.

STRABISMUS AND THE GENERAL CONSTITUTION.

F. Krusius (*Med. Klinik,* June 25, 1911) finds in his experience that children affected with squint are either unusually bright and ambitious or mentally backward or have other evidences of being below par. Such children may show a latent tendency to squint which may result in an actual squint after some fright, overexertion or infectious disease. He has observed the disappearance of squint after nasal polyps have been removed and after hygienic measures have restored the normal balance in the physical and mental development. He urges the importance of the general practitioner's watching for the tendency to squint and overseeing the child's mental and physical development, thus preventing the parents from crowding the nervous, ambitious child and seeking to stimulate the backward and apathetic. This alone goes to the root of the trouble and removes the cause, thus stopping the disturbances. Tact, patience and skill are necessary to succeed.

MEDICAL SOCIETIES

AMERICAN OPHTHALMOLOGICAL SOCIETY.

Atlantic City, June 12 and 13, 1912.

Reported by Mrs. M. C. Repp, Philadelphia, Pa.

(*Concluded.*)

Dr. W. Zentmayer, Philadelphia.—*A Case of Plexiform Neurofibroma Involving the Orbit.*

Girl, three and one-half years old. Hydrocephalic and poorly nourished. History of fall upon the head two weeks before the appearance of the growth. Hemispherical mass in the left temporal region with an extension across the rim of the orbit and a prolongation between the globe and the roof of the orbit to the apex. The mass feels like a bundle of cords. No buphthalmos. At the operation fibrous cords were found to pervade the temporal, frontal, and orbital region, with a vermiform cord extending to the apex of the orbit. Death twenty-eight hours after the operation, probably from shock. Macroscopically, the growth was made up of a mass of fibrous tissue with varicosed semitranslucent cords pervading it. Microscopically, medullated and non-medullated nerve fibers in a mass of fat and connective tissue. Moderate vascularity, bloodvessels both of capillary and well-formed arterial type.

Dr. John E. Weeks, New York City.—*Report of a Case of Endothelioma at the Apex of the Orbit, with Demonstration of Specimen.*

A woman, aged thirty, consulted me complaining of blurring of vision of the left eye and halos about lights, following a severe blow on the left side of the head two months previously. There was some exophthalmos but no pain or discomfort. Seven years later the patient was seen again and had grown worse, being entirely blind in the left eye with limitation of motion in all directions, but no pain. The skiagraph showed a hard mass projecting into the orbit. A Krönlein operation was performed in

February, 1912, and a small dark red mass was removed from the apex of the orbit which proved to be an endothelial sarcoma.

DISCUSSION.

Dr. Dunbar Roy, Atlanta, Ga.: Last year I had two tumors, one about the size of an almond, one a little larger, one a fibroma, the other an angioma. After the diagnosis of tumor had been made—there was decided protrusion downward and outward —I decided to go in above the upper orbital ridge and I was surprised with what ease the tumors could be removed in that manner. The incisions heal up very readily and I really think with tumors in the orbital cavity that we can go into the orbital cavity and remove these tumors without doing any very large operation.

Dr. John E. Weeks, New York City: The recovery from the Krönlein operation is perfectly satisfactory provided not too much traumatism is done. I prefer Krönlein's operation. Such a tumor as I have described could not have been reached by an opening into the orbit such as Dr. Roy described.

Dr. Robert Sattler, Cincinnati, O.—*A case of Chloroma and a Case of Tumor of the Optic Nerve.*

A boy aged 11 showed extremely rapid growth of a subperiosteal neoplasm involving both orbits and adjacent temporal and frontal regions, accompanied by excessive prostration, epistaxis and pain in the back and chest and quickly followed by exophthalmos and destruction of both eyes. Autopsy showed multiple pea green infiltrations scattered through the pericranium, dura, spinal column, sternum and internal organs which proved to be chloroma. I also report two cases of tumor of the optic nerve, one a fibrosarcoma with operation and with the patient in good health two years later. The other an intradural fibrosarcoma in a boy aged four with operation and with the patient in good health fourteen months later.

DISCUSSION.

Dr. Arthur J. Bedell, Albany, N. Y.: In 1908 I had occasion to see my first case of chloroma which was in a boy of 9. We had very elaborate chemical tests made and were unable to determine the source of this typical color. The second case was that of a woman of 20, married, who was eight months pregnant

at the time. She died within six weeks of the first symptom, which was proptosis of both eyes. On autopsy we found that we had a green infiltration of every part of her body, including large masses in the uterus. The fœtus also had green infiltration in parts of the body. I speak of the cases because they are unusually rare. At the time of going over the literature 44 cases only were on record and only four of these had been diagnosed previous to death.

Dr. Charles H. May, New York City.—*The Treatment of Trachoma with Radium. The Use of Radium-Coated Celluloid Plates for this Purpose.*

Innumerable agents have been used for the cure of trachoma with a view of shortening the duration of treatment and lessening the attendant pain and discomfort, which are associated with remedies now in vogue, of which sulphate of copper is the most popular. Radium has been employed for this purpose. Experiments upon animals have shown that, when used in large amounts and long exposure, this remedy induces disastrous results upon the eyeball; but when employed in amounts sufficient for the purpose and with exposures of limited length, the agent is harmless to the globe. Various observers have investigated the effects of radium treatment of trachoma. The reports of the results of such treatment have been somewhat contradictory; a number of well-known ophthalmologists have claimed excellent results; others have been less enthusiastic; some have found radium less effective than certain older remedies. It is evident that radium has not become popular for the cure of trachoma, as the remedy is very expensive and the limited quantity available makes the treatment of any number of patients impracticable. The writer's manner of employing radium is less expensive and in more available form.

Dr. A. Edward Davis, New York City.—*Recurrent Retinal Hæmorrhages Occurring in the Young, with Report of Case.*

Juvenile hæmorrhage into the vitreous is the special type of hæmorrhage which is here considered. No specific cause can be ascertained. It occurs between the ages of fourteen and twenty-five years, more frequently in males. Puberty, gout, rheuma-

tism, constipation, anæmia, etc., have been considered as causes. Axenfeld claims that tuberculosis is the specific causative agent, and great weight should be given to his claims. In every case the tuberculin test (by hypodermic injection) should be made; and, if positive, the tuberculin (new) treatment should be given. Wasserman reactions should be tried, and repeated urinary examinations made. Autotoxæmias may be a causative factor. Collins and Mayou assign increased coagulability of the blood as a possible cause, while decreased coagulability is also mentioned. Marked perivasculitis of the retinal vessels may be present, as in de Schweinitz's case and in the one reported here. The symptoms are: Red specks or a red haze appears in front of the eyes; or, with a large hæmorrhage, vision may be almost completely lost. Where the hæmorrhage breaks into the vitreous, dark clouds with reddish borders may be seen. Pain may be present. The bloodvessels may be surrounded by what borders indicating perivasculitis. In the later stages, if retinitis proliferans develops, connective tissue bands and new bloodvessels may be observed with the ophthalmoscope. The treatment in the early stages consists in rest in bed for a few weeks, diaphoresis, and mild purgation, with calcium lactate or adrenalin on alternate weeks. Injection of human blood serum should be tried. The diet should be regulated, and the kidneys watched. Ligature of the common carotid has been practised as a last resort. Locally, cold cloths, leeching, subconjunctival injections of normal salt solution, or applications of this same solution warmed. Later, iodids, mercury, and general tonics should be given. After the first few weeks daily moderate exercise in the open air and cheerful surroundings are indicated.

DISCUSSION.

Dr. John E. Weeks, New York City: These cases of hæmorrhage in adolescence are extremely interesting. I do not think that they all belong to the same category. This case reported by Dr. Davis undoubtedly had a condition in which the coats of the arteries have been weakened almost throughout the system by some toxic influence. We have a toxæmia in this case without a particle of doubt. I do not think that local treatment in these cases has much, if any, effect. Subconjunctival injections have been worthless in hæmorrhages of the retina. Too much importance has been attached to the results of subconjunctival injections, whatever they may be. In cases of syphilitic infections

of the eye you may get the results from the use of cyanide of mercury. Injections of bichloride of mercury or other preparations have not in my hands given adequate results. I think we must reach these cases through the system by the use of remedies which will change the condition, eliminate the toxæmia and strengthen the walls of the bloodvessels so as to prevent the leakage which takes place.

Dr. S. Lewis Ziegler, Philadelphia: Following the suggestion recently made as to the treatment of uterine hæmorrhage by hypodermic injections of ampules of pituitary extract, I have had very good success in one case with that treatment. As to the absorption of the hæmorrhages, I think that there is no remedy comparable with extract of thyroid in small doses. You can accomplish more with that in a few weeks than you can in months by any other treatment, with one exception, and that is galvanism. Judging from the reports of various physicians you can use either the positive or the negative pole. I have always used the positive.

Dr. J. Scott Wood, Brooklyn, N. Y.: This case is simply typical of the course these things take; repeated hæmorrhages and then there comes a time when they stop. Either the improved nutrition has caused this or the rest. I do not believe there is any one remedy that can be relied on. In one of the cases reported by me a year ago definite evidence of intestinal toxæmia was present. I recall one where helminthiasis was at the bottom of the toxæmia and the patient seemed to get better after the parasites had been expelled. The general results of all the cases I got hold of—there were 100 or more—were that the recurrent hæmorrhages were very apt to develop into retinitis proliferans and a number of them developed chronic glaucoma with increased tension.

Next place of meeting: Washington, D. C.

Newly elected officers: President, Dr. Myles Standish, Boston; Vice-President, Dr. R. A. Reeve, Toronto, Canada; Secretary and Treasurer, Dr. Wm. M. Sweet, Philadelphia.

PHILADELPHIA POLYCLINIC OPHTHALMIC SOCIETY.

Meeting of May 9, 1912.

Dr. Wendell Reber in the Chair.

General Manifestations of Ateriosclerosis.—Dr. M. R. Goepp.

Arteriosclerosis may be classified under two general heads, mechanical and toxic. Arteriosclerosis is attributed to hard work, either manual labor or brain work, associated with worry. Men are more subject to arteriosclerosis than are woman and the overindulgence of many men, in both eating and drinking and also in working, are contributary causes to this condition.

That arteriosclerosis is brought about by toxins in the body is a proven fact, but just how this condition comes about is not clearly defined. There are the two forms of arteriosclerosis, senile and diffuse, to which may be added the nodular form of Councilman.

As one of the clinical manifestations, mention was made of a feeling of tingling and numbness of the extremities, formication, particularly in the arms and hands. The dizziness which is so commonly observed in arteriosclerosis may be the direct effect of cerebral anæmia, due to degeneration of the cerebral vessels, or a secondary result of the digestive disturbances which are quite commonly present.

The brachial artery is the least frequent artery to be affected.

Medicine owes a debt of gratitude to the ophthalmologists for the development of the study of the retinal vessels, which is so valuable in the study of the early diagnosis of general arteriosclerosis. The great advance in the study of the blood pressure has been a contributary factor in the study of arteriosclerosis also. It is by means of the diastolic pressure that we are able to separate the ventricular from the vasomotor factor, and therefore correctly determine to what extent the blood vessels alone are responsible for the hypertension.

The normal pulse pressure, that is the difference between systolic and diastolic readings (which represents the force of the ventricular contractions), is equal to from 40 to 50 or 55 mm. of mercury. A reading in excess of this indicates cardiac hypertrophy; while pulse pressure below 40 mm. should at least arouse the suspicion of cardiac insufficiency.

In his summary of the various forms of arteriosclerosis, he described, 1. Renal: The association of chronic interstitial nephritis and general arteriosclerosis is so common that one generally suggests the other. Patients suffering from typical chronic Bright's disease practically always present the signs of arterial degeneration. These patients are particularly prone to apoplexy from hæmorrhage or thrombosis.

2. The cardiac form presenting the picture of myocarditis and cardiac asthenia, or that of angina pectoris or both.

3. The cerebral form, with special localizations presenting symptoms of cerebral anæmia and more gradual destruction of brain tissue. It should be remembered that epilepsy developing late in life may be a manifestation of cerebral arteriosclerosis.

4. Arteriosclerosis of the extremities, which is most commonly observed in laboring men.

5. Emphysema and bronchitis with arteriosclerosis of the pulmonary artery and hypertrophy, especially of the right ventricle, also seen chiefly in the laboring class.

6. Mesenteric form.

Ocular Manifestations of Arteriosclerosis.—Dr. D. Forrest Harbridge.

Truly grave vascular changes may be present, but lacking subjective evidence, thus escaping observation unless perchance the patient consults the physician for some other intercurrent condition. It, however, does not necessarily always follow, because we have vascular disease of one system of vessels, that all others in the human economy are similarly involved.

For clinical purposes we may conveniently arrange vascular disturbance manifesting itself in the eye, as affecting external parts; subconjunctival hæmorrhage, paresis extraocular muscles due to intercranial hæmorrhage, secondary to arteriosclerosis, those conditions resulting from the pressure of a sclerosed vessel upon the optic nerve or other delicate structures. As affecting internal parts; the circulatory system of the fundus. All impair more or less seriously the function of the eye, and act as a strong index to the welfare of the general economy.

Regarding the earliest evidences which are strongly suggestive of vascular change, is the presence of corkscrew retinal artery twigs, particularly out toward the macular region, a dull red nerve head, flattening of the veins at artery crossings, sluggish

pupillary reaction, early failure of accommodation, partial or complete senile circle in the cornea, persistent headache in spite of careful refraction, particularly at the beginning of presbyopia, and a history of more or less frequent attacks of gastric or bronchial disturbances which make the patient really sicker than the conditions would seem to warrant.

The pathognomonic evidence of the arteriosclerosis presents all or at least many of the following conditions: Change in course, size and irregular caliber of the arteries and veins, the latter being indented at artery crossings; altered vascular reflexes, such as more brilliant central light streak (silver wire artery), undue fullness of the perivascular lymph sheaths, paleness of the vessels. In more advanced cases a few faint hæmorrhages. Retinal haze, more marked about nerve head.

DISCUSSION.

Dr. Posey said that the importance of a careful examination of the fundus could not be overestimated in the consideration of all cases of vascular sclerosis. He would refer, however, to but one phase of the subject, one to which he had first called attention in 1902, namely to transient monocular blindness in consequence of changes in the walls of the retinal vessels. In cases exhibiting this symptom the attacks of blindness usually lasted from 10 to 15 minutes; but he had observed one case where the blindness had persisted, though with intervals of remission, for 5 or 6 hours. While at the time of the attacks, there were all the signs of retinal ischæmia, the retina regained its normal appearance after the blindness had passed. He was convinced that many cases of permanent blindness, which in earlier years had been attributed to embolus of the central artery of the retina, were really of a thrombotic nature, or perhaps due to a mere spasm of the walls of the artery, and cited the classic case of Leber, in which there were all the ophthalmic signs of embolus, but in which the microscope failed later to reveal any evidence of either embolism or thrombosis. Dr. Posey said, however, that in spite of this experience, he was of the opinion that changes in the intima of the retinal vessels must in most cases be the exciting cause of the spasm. He dwelt upon the prognostic forecast, not only for vision in the affected eye, but also as regards the life of the patient, and said that while vision might be maintained for many years in eyes the seat of even repeated attacks, that final

blindness was to be dreaded on account of the thrombotic changes. Several of the patients whom he has observed had died some years later from vascular disease of the brain. He would, therefore, insist upon a treatment and a regimen to control arterial sclerosis in all cases.

Dr. Zentmayer recalled the remarkable cases of spasm of the central artery of the retina reported by Dr. Harbridge, through whose courtesy many of the ophthalmologists of Philadelphia had had the opportunity to witness the cycle of events connected with this phænomenon, namely the gradual extinction of the arterial circulation accompanied by a loss of vision and dilatation of the pupil, followed after a varied period of time by a return of the arterial circulation, a restoration of vision and contraction of the pupil. In connection with the retinal manifestations of arteriosclerosis he thought more emphasis should have been placed on the fact that the irregularity in the calibre of the vessels was much more pronounced in the veins, and that not only was the light streak on the arteries more brilliant but could be traced much further out from the disk than normally and what local œdema was often present at a point of crossing of an artery and a vein. The red "hot eye" was frequently seen in arteriosclerosis, especially in the presence of a gouty diathesis. A persistent asthenopia was often associated with arteriosclerosis. Optic atrophy, accompanied by a loss of the superior or inferior half of the field, had been attributed to pressure of the hardened ophthalmic artery upon the optic nerve, causing it to be further compressed by the dural sheath at the optic foramen. Other types of atrophy due to arteriosclerosis within the nerve trunk might also be mentioned.

Dr. John H. W. Rhein referred to arterial changes as related to the nervous system and said that the hæmorrhagic disturbances constitute but one symptom which is seen in arterial change within the brain. There is mental sluggishness, trembling and atrophy of the muscles. He spoke of attacks which quite frequently result from changes in the central arteries. The face is flushed, patient often falls to the ground but never loses consciousness. These attacks are due to anæmia of the brain, as Dr. Goepp has suggested.

Dr. Peter said, referring to angio-spasm of the central artery of the retina, or its branches, to which reference has already been made, "I believe when present is one of the earliest manifestations of the disease. It is also frequently observed after the arterio-

sclerotic process is well under way. I have observed it in three cases—20, 22, and 26 years of age—as an isolated symptom. In such instance there was a systolic blood pressure of 170 mm. Several years ago I had the opportunity of studying several hundred cases and incorporated them in a paper, including for purposes of comparison nine cases of syphilitic neuro-retinitis and three cases of parenchymatous nephritis. The average blood pressure in the various conditions was as follows:

9 cases of syphilitic neuro-retinitis—132 mm.

3 cases of parenchymatous nephritis—132 mm.; no ocular manifestations.

26 cases retinitis, arteriosclerotic in origin—165 mm.

49 cases of neuro-retinitis due to same cause—185 mm.

6 cases hæmorrhagic retinitis due to same cause—205 mm.

3 cases of so-called albuminuric retinitis—190 mm.

3 cases nephritic papillitis—225 mm.

When taken collectively this study, insofar as it goes, shows a more or less definite relation between the high blood pressure and the severity of the ocular manifestations."

Dr. Reber called attention to the fact that the walls of the retinal vessels are of the same index of refraction as the retinal structures itself, and that because of these things we become conscious of the walls of the vessels only when they are diseased. In studying vascular changes in the retina, it is not sufficient to simply inspect the optic nerve head and then swing the light axis out into the macula. The retinal crossings which display the more marked characteristics of angio-sclerosis are generally located anywhere from 1½ to 2 disk diameters away from the edge of the disk. It therefore requires considerable search and study to recognize such changes correctly. The five signs laid down by Alleman some years ago are good to-day; namely, the brick red hue of the nerve itself, the twisted little macular vessels; the broadened light streak producing the so-called silver wire artery; the varying contour of the veins, and particularly their alteration in calibre and course where crossed by the arteries. These are the signs that should be particularly looked for, as they are most likely to occur with the pre-pressure of the prenephritic stage. In the presence of established vascular change we cannot accomplish much. The great need now is for correlated study of these earliest signs and the co-existent general blood pressure. Naturally patients with such changes in their intra-ocular vessels are asthenopic, as Dr. Ziegler has

pointed out. The ciliary body is made up of muscular fibre and blood-vessels and even slight sclerosis of the blood-vessels of the ciliary body will, theoretically at least, reduce the power of accommodation.

Dr. Goepp said he was impressed with the precision with which the ophthalmologist could make his examination. The interesting question is, which is prior, the changes in the retinal vessels or our own observation of the blood pressure?

Dr. Harbridge drew attention to the experiments upon rabbits which were hung up by the hind legs for varying periods of time. Angio-sclerotic changes were noted that seemed to bear direct relation in their development to the time and length of suspension. He also referred to his own classic case of spasm of the retinal vessels, occurring while under ophthalmic examination.

D. Forrest Harbridge, Secretary.

OPHTHALMOLOGICAL SOCIETY OF THE UNITED KINGDOM.

Meeting held in the theatre of the Royal Dublin Society, May 11, 1912.

Mr. J. B. Lawford, F.R.C.S., President, in the Chair.

Dr. Lediard read a paper entitled "Melanotic Sarcoma of the Choroid with General Metastasis." It was a case in which metastases were seen in the liver and intestine, occurring in a woman, aged 55, who came under treatment in the Cumberland Infirmary with symptoms of gall-stone. During operation it was seen that the liver was diseased, and on incision a black tumour was discovered. Three years previously the patient had had the left eye removed in the Manchester Royal Eye Infirmary, on account of intraocular growth, correctly diagnosed. Vision had been failing for two years, and the eye was removed; there was pain, blindness, cataract, increased tension and shallow anterior chamber. The secondary growth in the liver showed masses of spindle-celled sarcoma, parts of which were pigmented, and others free from granules of melanin. There was also an invasion of the mucous layer of the intestine by pigment with sarcomatous cells lying between the gland follicles. The chief tumor

within the liver was as large as a small-sized orange and absolutely black. The gall-stone removed was a single large one, weighing 139 grains when dry, and measuring one and a half inch by one inch.

Mr. Jessop asked whether members really thought there was such a thing as a leucosarcoma; he had always been able to detect pigment microscopically in every choroidal sarcoma, no matter how white they appeared to be. Dr. Inglish Pollock and Mr. Devereux Marshall said that they had never seen a true leucosarcoma; a certain amount of pigment was always present.

Mr. Arnold Lawson expressed the belief that sarcoma of the choroid was really not a very malignant disease, and that many cases were cured if the eye was removed early enough.

Sir Henry Swanzy agreed with Mr. Lawson.

Mr. Hill Griffith said that of the cases he had reported about 50 per cent. were well three years after the primary growth was removed, and he doubted whether removal of the eye made much difference to the possibility of general metastasis; some cases removed in quite an early stage proved generally malignant, while others remained for years and produced no metastasis at all.

Mr. Holmes Spicer mentioned the case of a patient whose eye he removed in 1898, and who still showed no further signs of the disease. He also mentioned another case where the patient refused treatment ten years ago, and was still well.

Mr. Berry doubted if a growth which appeared ten years after removal of any eye for melanotic sarcoma was really a metastasis at all. He believed that leucosarcoma did occur, and the sooner all these cases were operated upon the better was the chance of life.

Mr. Bishop Harmon thought that the younger the patient was the more malignant was the growth.

Mr. Bishop Harman (London) read a paper entitled "A New Operation for Squint—Sub-conjunctival Reefing and Advancement."

Mr. Harman said that despite a growing condemnation of tenotomy, the operation still lived in out-patient practice because of its facility. To secure reasonable prospects of success with the operation of advancement, with or without tenectomy, the patient had to be put to bed with both eyes bandaged. His aim in devising this new operation of reefing-advancement was to

avoid these difficulties. He believed that he had succeeded in this. The operation he described was comparatively easy to perform, and expeditious. Of the 34 patients he had operated on, only one had been kept in bed, all the others had been outdoor patients with only the one eye bandaged. The results up to date were distinctly gratifying, both to patient and surgeon.

Briefly, the operation consisted in exposing the edges of the tendon to be shortened, then with special forceps folding or reefing the tendon, very much in the same fashion that the laundry-maid treats linen frills in the process of goffering. The operation could be varied according to the degree of squint: (1) the extent of the reefing or shortening of the tendon could be varied by the adjustment of the reefing forceps; (2) in high degrees of squint the sutures used to secure the reef were carried forward so as to advance the reef. The steps of the operation (say for convergent squint) were:—(1) Securing the eye by the insertion of an anchor stitch at the limbus, thus avoiding the use of fixation forceps, and the stitch was used to fix the eye in abduction at the end of the operation. (2) Locating the tendon. It was pointed out that there were distinct color differences in the conjunctiva, according as tendon or Tenon's capsule was beneath it. These differences were marked in the young. (3) Two buttonholes were cut through the conjunctiva right to the sclera above and below parallel to the edges of the tendon, between the insertion and the canthus. (4) The surfaces of the tendon were rasped with a squint hook, the edges of which had teeth. This stimulated the production of adhesions when this part of the tendon was folded. (5) The reefing forceps were applied to the tendon. The forceps were like squint hooks, whose short flat handles fitted together and were adjustable, so that the hooks coincided or separated by varying widths. Working from the outer canthus one blade was slipped beneath the tendon and the other blade above the tendon and under the conjunctiva. When the forceps were turned from the outer canthus to lie across the nose, the tendon was folded over or reefed. (6) The base of the reef was then fixed by appropriate sutures. If the squint was of low degree the operation was then finished. If it were of high degree the sutures were carried forward and fixed into the sclera at the limbus, so that tying the sutures advanced the reef and further abducted the eye. (7) Finally the eye was completely abducted by means of the anchor stitch; this was fixed to the skin of the canthus with strapping. By this means relaxation of

the antagonist of the operated muscle was produced, and it protected the reef from too early strain. The eye was bandaged, the spectacles worn with a blinker beside and half covering the open eye, so as to cause the patient to look towards the operated muscle. The anchor stitch was removed the third day, and the reefing stitches on the tenth day.

Mr. Bishop Harman also gave an account of "Some Experiments to Ascertain the Security of Sutures for Squint Operations." He said that in squint operations four modes of placing the scleral sutures were possible. The part that traversed and gripped the sclera might be placed (1) in line with the axis of the tendon and at right angles to the limbus; (2) across the axis of the tendon or parallel to the limbus. Further, each of these sutures might be made with a single or a double thread. To find out which of these possible modes gave the greatest security. Mr. Harman had made experiments with artificial materials and their tearing strain under weights. The conclusion was that a double silk thread placed in the sclera across the axis of the tendon, and therefore transversely to the strain of the suture, had a carrying power of 12 to 18 per cent. greater than the other three modes. He had found these experimental data confirmed in practice. For that reason he inserted his stitches as above described in advancement operations.

Dr. Louis Werner (Dublin) read a paper on "Disease of the Pituitary Body without Acromegaly." He gave a short history of the discovery of the disease, and described what had been ascertained by experimental evidence and clinical facts. He discussed the course and symptoms, and gave the views of various observers. A series of photographs were shown on the screen depicting animals and X-ray photographs of patients suffering from the disease, as well as microphotographs of the pituitary body in health and disease.

Mr. H. H. B. Cunningham (Belfast) read a paper on "Fusion Pictures." He emphasized the importance of training the fusion sense in young children, but thought that stereoscopes, etc., were too complicated and too expensive for general use. He had devised a series of pictures drawn in two colors, which could be seen through a colored screen. One part of the picture could be seen with one eye, and one with the other. Those for very young children were of a very elementary character, but for older children they were rather more elaborate. In this manner, as with

an ordinary stereoscope, binocular vision could be developed and educated.

Mr. J. Stroud Hosford (London), in describing a new method of extraction of cataract in the capsule, said that the operation was justly looked upon as a major operation, and the premier operation in ophthalmic surgery. Very serious dangers could be avoided if removal of the lens in its capsule could be done with safety. During the present year he had performed nine cataract extractions by a new method, which consisted of entering a discision needle into the lens, and then rotating the lens on an antero-posterior axis. This caused the zonule of Zinn to be torn, after which the lens, in its capsule, could be removed without the loss of vitreous. The lens could be thus rotated either before or after the making of the section. If this method were adopted, incomplete lenses could be removed, and it had all the advantages of Smith's operation, besides being safer and not so complicated.

ABSTRACTS FROM MEDICAL LITERATURE

By J. F. Shoemaker, M.D.,
St. Louis, Mo.

THE FIELD OF VISION IN TABETIC ATROPHY OF THE OPTIC DISC.

E. Fuchs (*Trans. Am. Oph. Soc.*, 1911) says that while Uhthoff estimates that about 2 per cent. of all cases of tabetic atrophy present a central scotoma in the field of vision, his experience leads him to believe they are more common, as he has seen no fewer than thirty cases among his private patients. He does not agree with the commonly held opinion, that the central scotoma is a complication due to a simultaneous syphilitic retrobulbar neuritis. In all of his cases the central scotoma was bilateral which corresponds with the findings of most others, as only a very few one-sided cases are recorded. He says: "In the very beginning the scotoma is small, round, and actually central; at the same time the blind spot of Mariotte is found to be enlarged. Later on the scotoma extends its limits mainly to the temporal side, so as to join finally the blind spot and assume

the shape of a horizontal ellipse. At first it is only the perception of colors, especially of red and green, which is abolished within the area of the scotoma. But if we examine carefully with small test objects and at a distance of one meter (3 feet) or more (Bjerrum's method), we do not fail to detect spots of absolute blindness within the color-blind area. The blind spot of Mariotte is, of course, one of these, but besides there may be a small blind spot just in the center, or around it as a minute ring scotoma, which is rarely complete, but more often represented only by a blind arc concentric to the fixation point. Later on the scotoma not only becomes larger and larger, but also more and more absolute, all perception of light being abolished within its limits."

Coincident with the formation of the scotoma, contraction of the periphery of the field takes place, that for color being more marked than for white, the perception of color being entirely lost in some cases while the fields for white are still fairly good. As the case advances the contraction becomes irregular and then narrows down more and more on one side until it joins the central scotoma and total blindness develops. The condition of the central scotoma of course regulates the visual acuity in the different stages. The differential diagnosis between central scotoma due to tabes and that due to toxic amblyopia caused by tobacco and alcohol poisoning is made by the fact that in the latter the periphery of the field remains normal and also the color perception outside of the scotoma. Also the ophthalmoscopic examination shows a normal disc in the beginning of the toxic amblyopia cases, this becoming pale on the temporal side only later on, while in tabetic cases the discs are pale on the temporal side from the beginning and the palor spreads over the whole disc later on. There is greater difficulty in differentiating this condition from those cases due to syphilitic retrobulbar neuritis. Fuchs says he knows only two distinctive points in favor of syphilitic neuritis. First, the good effect of appropriate treatment which stops the loss of vision, and second, the palor of the disc generally appears only at a later stage.

The author leaves the question of the seat of the lesion and the other question as to whether tabetic changes are purely degenerative or whether they follow some slight chronic inflammation, open for future settlement. His cases have all gone on to blindness in spite of all treatment.

Bitemporal hemiopia is another unusual alteration of the visual

field in tabes. While this may sometimes be a complication due to a syphilitic inflammation at the site of the chiasm, Fuchs believes that as a rule it is a genuine tabetic affection, the degeneration taking place in the chiasm in place of in the optic nerves where it usually occurs.

NON-GONORRHŒAL OPHTHALMIA IN NEWLY BORN INFANTS.

V. Morax (*Ann. de Gynécologie et d'Obstetrique,* June, 1911) reviews the history of the "inclusions" in the cells which Prowazek found in trachoma and not in other forms of conjunctivitis, but whose specificity was apparently disproved by Uhthoff's discovery of the same inclusions in certain forms of ophthalmia neonatorum, and Lindner, by inoculation of monkeys, revealed their presence in the vaginal secretions of the mothers and in a certain form of urethritis in males. These facts were at first supposed to contradict the original deductions, but further research has shown that they are all apparently links in one chain, all proving the existence of a special type of inflammation involving the mucosa of urethra, vagina and eyes, transmissible from the urethral to the vaginal mucosa and from the latter to the conjunctiva of the eye of the child at birth, the clinical manifestations being tumefaction and moderate secretion of the mucosa. The microscope reveals in some of the epithelial cells of the mucosæ involved certain inclusions in the form of a bunch of fine points or double points enclosed in an intra-epithelial pocket or cyst-like formation in the shape of a crescent or sphere and apparently not influencing otherwise the cells containing them. Ophthalmia neonatorum not the work of the gonococcus is generally of this inclusion type, Morax states, and silver nitrate prophylaxis has no influence on it. Sometimes this type accompanies the ordinary type of ophthalmia neonatorum. The inclusion ophthalmia may persist for weeks up to two months in spite of the most approved and systematic measures of treatment and leave a thickening of the conjunctival culs-de-sac in the form of a series of parallel folds seen when the lower lid is everted, but there seems to be no danger of ulceration of the cornea. Morax found the inclusions in fifteen out of twenty cases of ophthalmia neonatorum and Lindner found them in fifty-three pure and in four cases mixed in 110 cases of ophthalmia.—*Jr. A. M. A.*

PATHOGENESIS OF ALBUMINURIC RETINITIS.

Chauffard (*Semaine Médicale*, April 24, 1912) calls attention to the fact that we seem to know very little of the actual cause of symptomatic retinitis, although we have known for some time the importance of ophthalmoscopy in making an early diagnosis of many circulatory, nutritive and organic diseases, especially Bright's disease. As a matter of fact there are a number of lesions of the retina found in Bright's disease: Neuropapillitis, circumpapillary œdema, retinal hemorrhage, and punctiform white spots. Arteriosclerosis and hypertension are responsible for the hæmorrhages. Chaufford thinks that chloride retention and cephalorachidian hypertension may bring about the papillitis. The white spots found in Bright's disease, pregnancy or diabetes may be caused by retention of nitrogen, he thinks, or—he suggests a new hypothesis—they may be due to hypercholesterinemia, and for this condition the suprarenal capsules may be found responsible. He finds hyperepinephry and progressive renal impermeability as the most likely causes of albuminuric retinitis. In the treatment of these forms of retinal trouble he recommends lumbar puncture as being useful in the early stages, while later restricted diet appears to be about the only thing of much value; skim milk, starchy vegetables, sugar, and meat cooked without salt being prescribed.

REFRACTION CHANGES IN DIABETES.

Cassius D. Wescott and John B. Ellis (*Jour. A. M. A.*, Aug. 12, 1911) refer to the frequency of increase of refraction in cases suffering with diabetes and call attention to the fact that the refraction may also diminish in these patients; and further that it may increase and diminish in the same patient and that the changes bear no relation to the amount of sugar in the urine. They review the cases of diminished refraction in diabetic patients reported in the literature and report three cases of their own. Mention is made of the different theories of the manner in which refraction changes are brought about in diabetes, but the authors believe that none of the theories will do. They advance none of their own but leave the explanation to be worked out in the future.